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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/653,222      | 09/03/2003  | Jin Li               | M4065.0735/P735     | 2741             |

24998 7590 06/15/2006

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EXAMINER

NGUYEN, JOSEPH H

ART UNIT PAPER NUMBER

2815

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/653,222

Applicant(s)

LI, JIN

Examiner

Joseph Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 21, 27, 33, 36-39, 41 and 47-55 is/are pending in the application.
- 4a) Of the above claim(s) 33, 36-39 and 41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21, 27 and 47-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Group I, directed to claims 21, 27 and 47-55 in the reply filed on 05/23/2006 is acknowledged.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21, 27, 47-50 and 53-55 are rejected under 35 U.S.C. 102(b) as being anticipated by Kochi et al. (US 6,188,094).

Regarding claim 21, Kochi et al. discloses in figures 4 a light detecting system comprising a substrate 10 (col. 4, line 39) having a plurality of photosensitive regions 11 (col. 4, line 44); and a substantially planar microlens array 14, 15 formed over said plurality of photosensitive regions; said microlens array comprising a first light conductor 14 (col. 4, line 60) having a plurality of concave recesses; and a second light conductor 15 within each recess (col. 5, lines 4-5) and over a planar surface of said first light conductor 14.

It is noted that elements 14, 15 together can form and function as the claimed microlens since they comprise similar materials (see column 4 of Kochi et al.) and structures as those of the claimed microlens.

Regarding claim 27, Kochi et al. discloses in figures 4 an integrated circuit comprising a substrate 10 having a plurality of photosensitive regions 11; and a substantially planar microlens array 14, 15 formed over said plurality of photosensitive regions; said microlens array comprising a first light conductor 14 having a plurality of concave recesses, said plurality of concave recesses being coextensive, and a second light conductor 15 within each recess and over said first light conductor, said second light conductor 15 being coextensive with an adjacent second light conductor 15 in at least a first plane (figure 4C), and readout circuitry (as shown in figure 5) coupled to said plurality of photosensitive regions within said substrate.

Regarding claims 47 and 53, Kochi et al. discloses the first light conductor 14 has a first index of refraction and the second light conductor 15 has a second index of refraction that is different from said first index of refraction (col. 5, lines 1-3).

Regarding claims 49 and 55, Kochi et al. discloses the first light conductor 14 and the second light conductor 15 are formed of SiO<sub>2</sub> (col. 4, lines 25-27), and SiO<sub>2</sub> is also known as "glass".

Regarding claims 50, Kochi et al. discloses a color filter formed over the second light conductor (col. 5, lines 21-22).

Regarding claims 48 and 54, Kochi et al. discloses the first index of refraction is less than the second index of refraction (col. 3, lines 64-66 and col. 4, lines 1-2).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kochi et al. in view of figure 1 of the acknowledged prior art (APA).

Regarding claim 51, Kochi et al. discloses in figures 4 substantially all the structure set forth in claim 51 except a color filter formed below the first light conductor (claim 51). However, figure 1 of (APA) shows a color filter 22 below the first light conductor 12. In view of such teaching, it would have been obvious at the time of the present invention to modify Kochi et al. by having a color filter formed below the first light conductor to allow predominantly light of a specific respective color to pass through an imaging array (page 3, lines 1-5 of the present invention).

Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kochi et al.

Regarding claim 52, Kochi et al. discloses in figures 4 substantially all the structure set forth in claim 52 except a portion of the second light conductor having a thickness as recited in claim 52. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to Kochi et al. by having

except a portion of the second light conductor having a thickness as claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

Applicant's arguments filed on 03/06/2006 have been fully considered but they are not persuasive.

With respect to claims 21 and 27, applicant argues Kochi fails to disclose, "a substantially microlens array formed over said plurality of photosensitive regions; said microlens array comprising ... a second light conductor within each recess and over a planar surface of a first light conductor". However, Kochi clearly discloses in figures 4 a substantially planar microlens array 14, 15 formed over said plurality of photosensitive regions; said microlens array comprising a first conductor 14 (col. 4, line 60); and a second light conductor 15 within each recess (col. 5, lines 40-50) and over a planar surface of said first light conductor 14. It is noted that elements 14, 15 together can form and function as the claimed microlens array because they constitute similar material (column 4 of Kochi) and structures as those of the claimed microlens array. Further, applicant argues Kochi does not disclose, "the second light conductor being coextensive with an adjacent second light conductor in at least first plane" as recited in now amended claim 27. However, as clearly shown in figure 4C of Kochi, the second light conductor 15 is coextensive with an adjacent second light conductor 15 in at least first

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plane. It is also noted that there is no specific definition of "first plane". As such, the second light conductors 15 can be considered "being coextensive in a first plane".

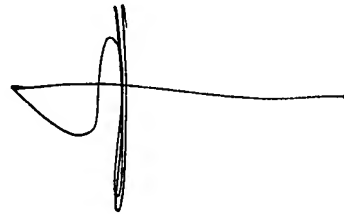
Lastly, since the rejection of claims 21 and 27 is proper as explained above, the rejection of claims 47-55 still stands herein.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (571) 272-1734. The examiner can normally be reached on Monday-Friday, 7:30 am- 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300 for regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JN  
June 6, 2006.

A handwritten signature in black ink, consisting of a stylized, cursive 'K' followed by a horizontal line extending to the right.

**KENNETH PARKER**  
**SUPERVISORY PATENT EXAMINER**